

## ABSTRACT

A method including forming a semi-crystalline polymer material into a lamella; and stretching the lamella into a polymer comprising a node of folded lamella and a fibril orientation. A method including extruding a pseudo-gel comprising an ultrahigh molecular weight polyethylene material into a lamella; stretching the lamella into a polymer comprising a node of folded lamella and a fibril orientation; and annealing the polymer at a temperature sufficient to define the node and fibril orientation. An apparatus including a body portion formed of a dimension suitable for a medical device application and comprising a semi-crystalline polymer arrayed in a node of folded lamella and a fibril orientation. An apparatus including a body portion comprising an ultra-high molecular weight polyethylene material arrayed in a node of folded lamella and a fibril orientation.

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